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**van Os**

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(54) **CONTEXT-SENSITIVE HANDLING OF  
INTERRUPTIONS BY INTELLIGENT  
DIGITAL ASSISTANT**

3,704,345 A 11/1972 Coker et al.  
3,710,321 A 1/1973 Rubenstein  
3,828,132 A 8/1974 Flanagan et al.  
3,979,557 A 9/1976 Schulman et al.

(Continued)

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**FOREIGN PATENT DOCUMENTS**

CH 681573 A5 4/1993  
CN 1383109 A 12/2002

(Continued)

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(\*) Notice: Subject to any disclaimer, the term of this  
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**OTHER PUBLICATIONS**

International Search Report & Written Opinion received for PCT  
Patent Application No. PCT/US2013/028412, mailed on Sep. 26,  
2013, 17 pages.

(Continued)

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**G10L 15/22** (2006.01)  
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CPC ..... **G10L 15/22** (2013.01); **G01C 21/3629**  
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(58) **Field of Classification Search**  
CPC combination set(s) only.  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,559,320 A 10/1925 Hirsh  
2,180,522 A 11/1939 Henne

(57) **ABSTRACT**

Methods and systems related to intelligent interruption han-  
dling by digital assistants are disclosed. In some embodi-  
ments, a first information provision process is initiated in  
response to a first speech input. The first information pro-  
vision process comprises preparing a first response and a  
second response to the first speech input. After or concurrent  
with the provision of the first response to the user, an event  
operable to initiate a second information provision process  
is detected. The second information provision process is  
initiated in response to detecting the event. The second  
information provision process comprises preparing a third  
response to the event. A relative urgency between the second  
response and the third response is determined. One of the  
second response and the third response is provided to the  
user in an order based on the determined relative urgency.

**6 Claims, 8 Drawing Sheets**

